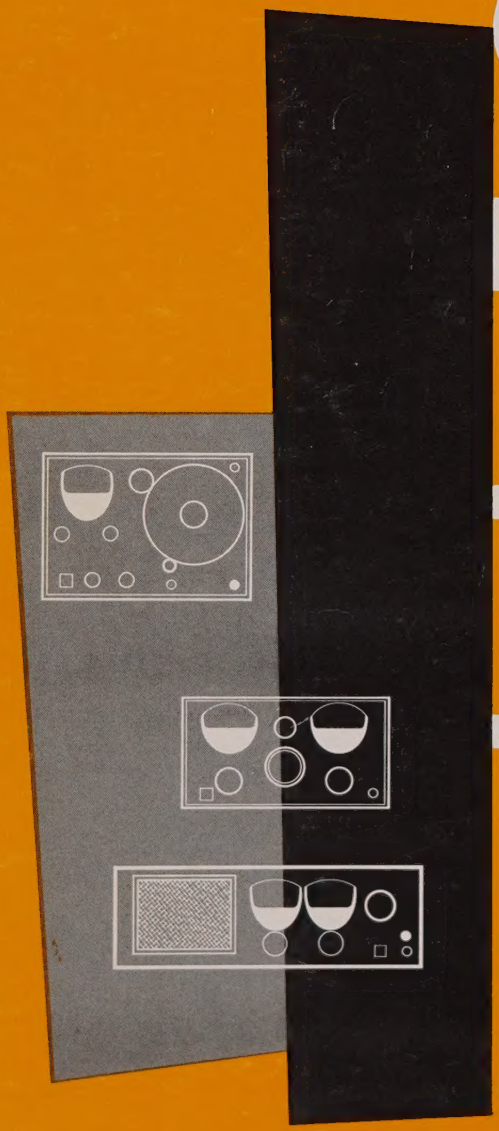
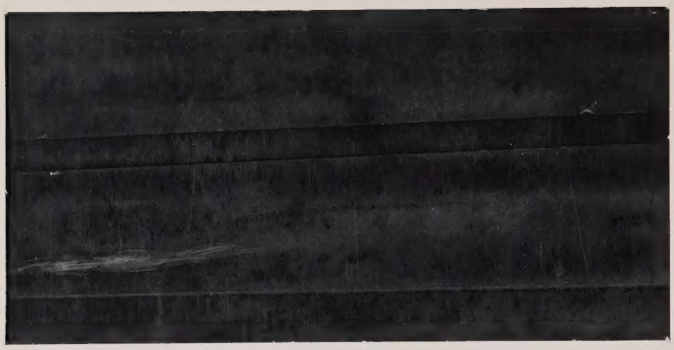
OPERATING INSTRUCTIONS
MODELS 170, 171
REGULATED POWER SUPPLIES

FOR SERIAL # 168



- REGULATED POWER SUPPLIES
- ELECTRONIC INSTRUMENTS

Quan-Tech
LABORATORIES INC.
BOONTON, N. J.



OPERATING INSTRUCTIONS
MODELS 170, 171
REGULATED POWER SUPPLIES

FOR SERIAL # 168

QUAN-TECH LABORATORIES, INC.

60 PARSIPPANY BLVD. BOONTON, NEW JERSEY

TELEPHONE: DE 4-8500

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MODELS 170, 171

REGULATED POWER SUPPLIES

GENERAL:

The Quan-Tech Regulated Power Supplies, Models 170 and 171 are extremely compact, closely regulated supplies. The two models are similar, differing primarily in their output current. The Model 170 provides an output current of 0.25 amp; the Model 171, an output current of 0.5 amp.

Both the Model 170 and 171 are available in three styles, as differentiated by the suffix letter following the model number:

Suffix "B" indicates the bench model, equipped with 3-wire line cord, front panel On-Off switch and calibrated output voltage control.

Suffix "C" indicates models having input and output connections through a standard octal plug, screwdriver output voltage adjustment, and provision for remote programming.

Suffix "T" indicates models having input and output connections at a terminal strip, and a screwdriver output voltage adjustment.

SPECIFICATIONS:

170 SERIES

INPUT VOLTAGE:		105-125V, 50-60 cycles
OUTPUT VOLTAGE:		10-32 VDC
OUTPUT CURRENT:		0.25 Amp.
REGULATION:	LINE,	Less than 3 Millivolts
	LOAD,	Less than 3 Millivolts
TRANSIENT RESPONSE:		Less than 50 Microseconds
RIPPLE:		Less than 250 Microvolts RMS
INTERNAL IMPEDANCE:		Less than 0.01 Ohm in series with 3 microhenries.
TEMPERATURE RANGE:		0-50° C.
OVERLOAD PROTECTION:		Electronic Protection, short circuit proof.
DIMENSIONS:		Height 3", Width 4", Depth 5"
WEIGHT:		3 Pounds

171 SERIES

OUTPUT VOLTAGE:	10-32 VDC
OUTPUT CURRENT:	0.5 Amp.
TEMPERATURE RANGE:	0-40°C. for bench use; 0-50°C. with suitable heat sink.
DIMENSIONS:	Height 3-1/2", Width 5", Depth 5-1/2"
WEIGHT:	5 Pounds

Balance of specifications as listed for 170 Series.

OPERATION:

The Models 170 and 171 should be provided with adequate ventilation. Since maximum internal dissipation is encountered at high line voltage, minimum output voltage, and maximum output current, the maximum safe ambient temperature is dependent on operating conditions. We will be glad to advise you on maximum temperatures for specific applications. Under short circuit conditions, the output current drops to approximately half the maximum output current, thus reducing dissipation.

The Models 170C and 171C may be remotely programmed over their entire output voltage range at approximately 40 ohms per volt above 10 volts by following the directions on the nameplate.

The Models 170C and 171C, above Serial 600, have provision for remote sensing. For remote sensing, remove shorts from pins 4 & 5 and 6 & 7. Run separate leads from load pin 4 and sense pin 5 to the negative load point. Run separate leads from load pin 6 and remote program and sense pin 7 to the positive load point.

MAINTENANCE AND REPAIR:

Most of the components in the Models 170 and 171 are standard commercial components available locally. Special parts can be obtained from Quan-Tech Laboratories.

The variable adjustments are available by removing the four screws holding the bottom cover.

In replacing components on the printed circuit board, the iron should be only hot enough to make a clean solder connection. Avoid pressure that might push the copper away from the board while hot.

Typical voltage values are indicated on the schematic diagram. Moderate variations may be expected from unit to unit, but large variations or polarity reversals indicate trouble.

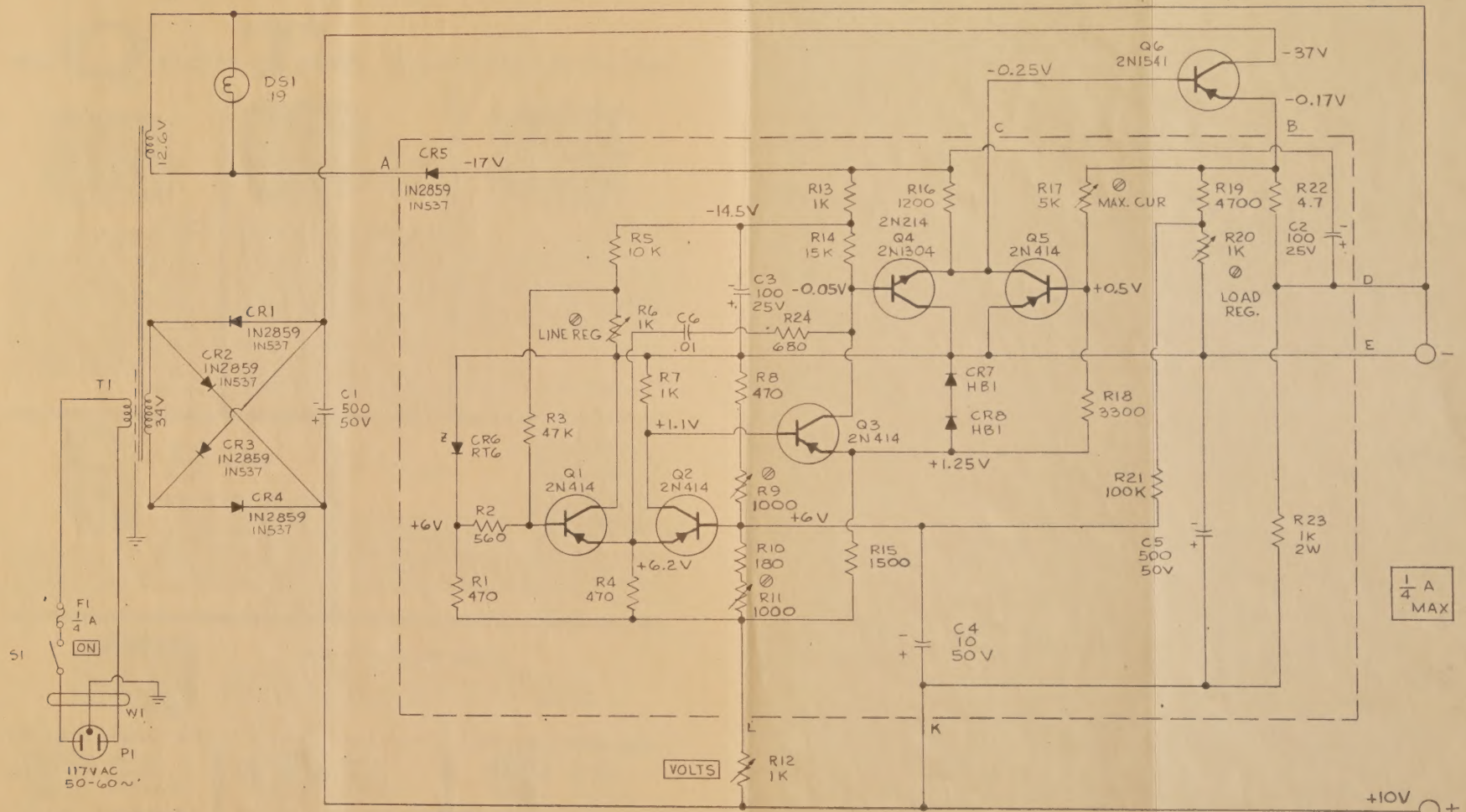
CIRCUITRY:

The Power Supply circuit comprises:

1. The main rectifier and filter.
2. A bias rectifier and filter.
3. A temperature compensated transistor regulator with zener diode reference.
4. A transistor circuit that limits the maximum output current.

Complete overall degeneration and proper compensation provide extremely close regulation, low output impedance, and excellent transient response.

A fuse is provided in the primary of the power transformer in the event of component failure. The Model 170 uses a 1/4A slow-blow, and the Model 171 a 1/2A slow-blow.



LEGEND
K = 1000
* = FACTORY SELECT
⊘ = SCREW DRIVER ADJUST
▭ = FRONT PANEL CONTROL

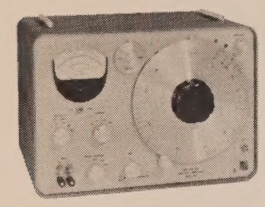
UNLESS OTHERWISE SPECIFIED
ALL RESISTANCES IN OHMS
ALL RESISTORS 1/2 WATT
ALL CAPACITANCES IN MICROFARADS

NOTE:
1. TYPICAL VOLTAGES MEASURED FROM NEGATIVE OUTPUT TERMINAL.
2. LINE VOLTAGE 117 V, OUTPUT SET TO 10 VOLTS, NO LOAD.

SCHEMATIC
POWER SUPPLY
MODEL 170-B

B-1984-G

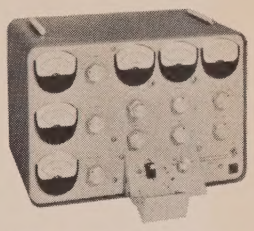
Quan-Tech INSTRUMENTS



MODEL 303
WAVE AND NOISE SPECTRUM ANALYZER

Fully transistorized spectrum analyzer covers frequency range from 30 cps to 100 kc. Front-panel selection of 4 constant bandwidths (10, 30, 100 & 1000 cps) the 100 & 1000 cps bandwidths are flat topped, simplifying noise computations, greatly improving accuracy, and simplifying tuning. Sensitivity: 100 μv to 300 v, full scale; down to 1 μv full scale with Model 203 Amplifier (see below). Additional features: ± 300 cps vernier; selection of long or short meter time constants; metering circuits compensated to minimize error from instantaneous noise pulses; overload protected meter; analog output for external monitoring.

PRICE: $1425



MODEL 310
TRANSISTOR NOISE ANALYZER

Measures noise at 100 cps, 1 kc and 10 kc simultaneously for 3-point spectrum analysis, allowing identification of 1/f-portion of transistor noise. Measures noise voltage over range from 0.01 to 3 μv/root cycle FS, and noise current from 1 to 300 pa/root cycle, FS. Collector current range, 0.05 to 30 ma; collector voltage range, 0.1 to 30 v. Measuring system automatically corrects for variations in transistor gain; measurement also provided of beta, I_{cbo} and I_{ebo}.

PRICE: $2075

MODEL 311 TRANSISTOR NOISE ANALYZER

Similar to above, except that collector current range extends from 5 to 1000 μamperes, for measurement of noise in low-collector-current devices. Beta measurement is not available in the Model 311.

PRICE: $2275

MODEL 315
RESISTOR NOISE TEST SET

Measures noise in resistors in conformance with specifications recommended by National Bureau of Standards and Method 308 of MIL STD 202 B. Tests resistors from 100 ohms to 22 megohms. Range of measurement: 0.6 μv in a decade to 1000 μv in a decade. Output of noise voltage for external monitoring; analog outputs of meter readings for data logging, etc. External cable included to permit locating test jig up to 10-feet from instrument.

PRICE: $1700

MODEL 2136

Same specifications as Model 315 except measures resistors down to 10 ohms.

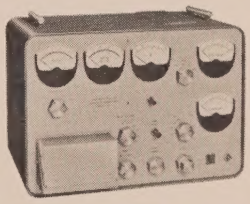
PRICE: $2300

MODEL 317
AMPLITUDE DISTRIBUTION ANALYZER

Establishes the amplitude-probability distribution of random signals to determine whether distribution is Gaussian, or to establish threshold requirements, false-alarm probabilities, etc. Amplifier response: 3db down at approx. 12 cps and 1 mc. Switching rate: 5 mc. Amplitude ranges: 100%, 10% and 1%, FS. "inverted" operation, indicating what percentage of time preset limit is not exceeded, also provided. Output to drive counter at front panel; voltage level may be swept from external source (such as oscilloscope sweep output) for automatic display.

PRICE: $395

MODEL 327
DIODE NOISE ANALYZER



Measures noise in back-biased semi-conductor diodes over range of 0.03 μv to 1 mv per cycle of bandwidth at 10 cps and 1 kc simultaneously. Diode test voltage adjustable up to 500 v; current, to 100 ma. Internally generated ramp sweeps test voltage and/or current automatically within maximum ratings. Sweep selectable in 3 speeds. A wide variety of signal and analog outputs for data logging, external monitoring, actuating external equipment, etc.

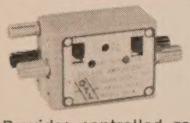
PRICE: $2450

MODEL 420 RANDOM NOISE GENERATOR

Provides stable "white" noise output that is gaussian in amplitude distribution from DC to 100 KC. Calibrated output is continuously variable from 0.01 to 1000 μv per root cycle. DC offset is less than 10 mv at max. output. Completely solid-state instrument measures 12" x 6" x 8".

PRICE: $525

SOLID STATE AMPLIFIERS



MODEL 201-B
DC-COUPLED DECADE AMPLIFIER

Provides controlled gain of 10 from DC to 3 mc (3db). Completely self-contained; battery operated; built-in battery-condition indicator.

PRICE: $95

MODEL 203
LOW NOISE AC AMPLIFIER

Controlled gain of 100 from 30 cps to 100 kc (±0.5 db), down 3 db at 500 kc. Typical noise: 5 x 10^{-9}V and 3 x 10^{-12}A per root cycle at 1 kc. Two Mod. 203's may be plugged together in series for gain of 10,000. Battery operated; fully self-contained; built-in battery condition indicator.

PRICE: $125

MODEL 205
HIGH-STABILITY DC AMPLIFIER

Controlled gain of 10 from dc to 100 kc. Highly stable: typical shorted input drift less than 250 μv at room ambient. Octal basing for plug-in installation. External + and — 12 v. required.

PRICE: $105

All prices shown are F.O.B. Boonton, N. J. Prices and specifications subject to change without notice.

Quan-Tech LABORATORIES, INC.

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